

[METHOD OF FILLING INTERVALS AND FABRICATING SHALLOW TRENCH ISOLATION STRUCTURES]

Abstract

A method of filling intervals between protruding structures is provided. A substrate with a plurality of protruding structures thereon is provided. The protruding structures are distributed over the substrate such that intervals are formed between adjacent protruding structures. A first dielectric layer is formed over the substrate so that the dielectric material fills the intervals between the protruding structures and covers the protruding structures as well. The first dielectric layer has a plurality of apertures therein located at a level above a top section of the protruding structures. A chemical/mechanical polishing operation is performed to remove a portion of the dielectric layer and expose the apertures to form a plurality of openings. An anisotropic etching operation is performed to increase the width of these openings. Finally, a second dielectric layer is formed over the first dielectric layer to fill the openings completely.